



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Protective Equipment

Maxillofacial Protection for the Mitigation of Facial Injuries and Blast Wave Propagation

Researchers at the University of Nebraska at Lincoln, with support from PM SPE, have demonstrated that the addition of a maxillofacial system (mandible and visor) to a combat helmet not only provides increased ballistic and blunt impact protection to the face but also mitigates blast waves. The additional mass added by the maxillofacial system and its design mitigates the effect of blast waves to the head by disrupting its propagation and reducing the resulting pressure that is imparted on the head. This documentation allowed for the remaining maxillofacial systems (100) to be provided to a unit to conduct continental US training and to utilize when deployed outside the continental US. Feedback gathered from the unit refined the maxillofacial system and influenced requirements for the next generation of head protection—the IHPS, a subsystem of the SPS. Development of the IHPS also has provided technology that may be backwards compatible with the currently fielded Advanced Combat Helmet (ACH). PM SPE is exploring the operability of maxillofacial protection upgrade kits for the ACH. Preliminary data from an August 2015 user evaluation of ACH maxillofacial upgrade kits show that they meet user acceptability criteria.